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Committee on Transportation and Infrastructure
Subcommittee on Aviation

In-Line Explosive Detection Systems: Financing and Deployment

Testimony by

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Mr. Chairman, on behalf of Reveal Imaging Technologies, I would like to thank you for the opportunity to appear before the Subcommittee to offer my observations on the screening of airline passengers' checked baggage with in-line explosive detection systems (EDS) now, and in the future. As a relatively new company, this marks Reveal's first opportunity to testify on our next generation aviation security solution, and we very much appreciate your invitation to appear before the Subcommittee today.

As I will discuss in a moment, Reveal is a company that has been funded primarily through private investment. Yet, we also consider the Transportation Security Administration (TSA) a partner in our innovative effort to meet the national mandate to screen airline passenger baggage. We look forward to continuing this collaboration with TSA, and this Subcommittee, to innovate solutions that provide not only the highest level of security, but also the highest possible levels of customer service to the millions of air travelers in this country.

About Reveal

Before focusing on specific issues related to in-line EDS, I think it might be useful for the Subcommittee if I first provide some background on Reveal Imaging Technologies.

Reveal was formed in the wake of 9/11 and the subsequent enactment of the Aviation and Transportation Security Act (ATSA). Through your leadership, Mr. Chairman, the enactment of ATSA was a defining moment in the history of aviation security and the security industry. For the first time Congress mandated 100 percent screening of all passenger checked baggage, along with other improvements to the aviation security system, such as screening of carry-on baggage for explosives. This law has dramatically improved aviation security. It also had the unforeseen benefit of creating a climate conducive to private investment in new and innovative solutions to our nation's aviation security challenges. These opportunities for private investment became even more acute

as TSA and the airline industry rushed to meet the 100 percent checked-baggage screening deadline mandated by ATSA.

The mandate for 100 percent checked baggage screening, the resulting difficulties faced by air travelers in the months following 9/11, and Reveal's innovative solution to these difficulties all contributed to Reveal's ability to raise in excess of \$10 million in private funds for one express purpose – to develop a next generation explosive detection system.

The core vision of the Reveal leadership team is to develop new innovative products offering the highest levels of security, while at the same time operationally compatible with airports and airlines. We understand that the aviation industry is required on a daily basis to move millions of people from point A to point B in the quickest and most efficient manner. Therefore, we realize that to be successful any new security system we develop has to provide the highest levels of security, while simultaneously minimizing the operational impact of that security to the airports and airlines and reducing the hassle factor felt by passengers.

In addition to the establishing the screening deadline, the Act specified that baggage screening must be performed using TSA Certified Explosive Detection Systems. Since the only technology to date that has proven capable of achieving the rigorous EDS certification standards is Computed Tomography (CT) technology, Reveal decided to start with a clean sheet of paper and see if there was a way to develop a next-generation EDS that was based on CT technology, but at the same time was

- less expensive;
- smaller and lighter; and
- in-line with the way an airport operates.

As discussed above, the last point is particularly important.

Checked Baggage Screening: Lessons Learned

There are two broad categories of EDS machines currently available.

- Stand-alone machines that are deployed in “lobby” installations.
- Integrated machines that are deployed in “in-line” installations.

The two primary advantages of the lobby installations are the quick implementation time and the fact that passengers will be present if their bag is flagged for physical search. This approach is labor intensive, uses valuable lobby space, and is not convenient for the passenger. It is clear to all that this is not an effective long-term solution.

The current solution to the lobby problem is to install EDS machines “in line” directly into the baggage conveyor system. This option requires significant modification to the baggage conveyor system and airport infrastructure in order to add the EDS equipment, conveyors, and bag tracking systems. To implement this solution, most airports will be required to re-construct existing terminals to house the baggage screening equipment and personnel – or even create new buildings or extensions to do so. Government estimates project that up to \$10 billion in additional equipment and airport infrastructure will be required to achieve the 100 percent inspection mandate using the in-line solution.

This is not meant to imply that placing EDS equipment in-line is not a good approach. In fact, we believe that in-line screening is indeed the best option available to both airports and TSA. By placing EDS equipment in-line and networking the systems to a single operator screening room, TSA will be able to realize substantial labor savings year after year. Your colleagues on the Homeland Security Appropriations Subcommittee acknowledged this in the committee report (H.R. 108-541) accompanying the fiscal year 2005 bill, by stating that “if TSA deployed inline Explosive Detection Systems (EDS) machines

with multiplexing capabilities, TSA could save up to six FTEs for each suite installed.” Clearly it makes financial sense for the Federal Government to implement this solution.

What about the other stakeholders? Does deploying EDS equipment in-line make sense to airports, airlines, and passengers. Again, I believe the answer is an unequivocal yes. This was clearly articulated in testimony to this subcommittee by representatives of Airports Council International and American Association of Airport Executives. In their written testimony, Mr. David Plavin and Mr. Todd Hauptli stated, “Nowhere can better improvements be made in aviation security and system efficiency than in the area of explosive detection (EDS) installation at airports. While the costs of moving EDS equipment out of crowded terminals lobbies and placing it ‘in-line’ as part of the airport’s integrated baggage system are significant with a price tag estimated between \$4 billion and \$5 billion nationally, investing now in this effort will improve security and service and produce significant personnel savings.”

Next Generation Explosive Detection Systems

Reveal has spent the last year answering the question, “Is it possible to deploy EDS in-line and achieve the resulting personnel savings for TSA without a \$4 billion to \$5 billion price tag?” We recognize that the needs and desires of each airport are different. For example, the screening issues confronting Orlando International Airport are different from those of Gulfport-Biloxi International Airport in Mississippi. Given this reality, how do you best solve this dilemma and still provide airports with the options they will ultimately require?

Again, I believe Messrs. Plavin and Hauptli provided sound advice in their testimony on February 12, 2004. They stated, “The federal government needs to look toward the promise of new technology and invest in making those promises a reality. Like you, Mr. Chairman, we remain convinced that there are a number of additional applications of new technology...The key is for the federal

government to encourage innovation in these areas and to make it a priority to investigate and approve new technology as quickly as possible.”

Reveal has designed and built a product that not only provides a means for TSA to achieve their goal regarding personnel savings, but also provides airports and airlines with a way to deploy EDS in-line at a fraction of the cost. It is also a true success story of how industry and government can work together to very quickly define, develop, and produce new and innovative technology.

Briefly, Reveal developed a way to reduce the size of EDS machines without compromising detection performance. This allows next-generation EDS machines to be far smaller and less expensive than the incumbent generation of screening units. While sharing the same tunnel size as existing EDS products, these systems can now be built into the passenger ticket counter or check-in desk as a distributed network of EDS scanners.

This distributed architecture provides in-line EDS without forcing airports to undertake the costly redesign and rebuild of their baggage conveyor system. Because it is fully networked, this next-generation EDS solution provides screener labor savings identical to custom in-line rebuild programs, but without the billions of dollars in airport infrastructure reconstruction and disruption to airport operations.

Furthermore, for some airports, the passenger check-in counter is a logical place to perform baggage screening since passengers typically wait about two minutes for their boarding pass. This “dead” time provides the next-generation EDS machines with the time to significantly reduce the rate of false alarms experienced by alternative installations that have only a few seconds to scan a bag. And because the bag stays with the passenger throughout the screening process, any conflict resolution can occur while the passenger is with the bag, potentially increasing passenger satisfaction. These smaller next-generation

units can also be used anywhere passengers and their baggage check in, including curbside and remote check-in or at self-serve kiosks.

Passenger Checkpoint: The Next Challenge

I would like to very briefly discuss what I see as the next challenge for TSA and this Subcommittee – screening carry-on luggage for explosives. Although at first glance this might not seem to be related to the deployment of in-line EDS, I believe they are very closely related. To a large extent, TSA will face the same issues it has faced with checked baggage when it begins to investigate potential options for screening carry-on baggage for explosives. These are natural choke points in the airport security process and must be dealt with in a “distributed” manner at airports.

Although deployment of EDS at checkpoints can improve the overall detection performance of the passenger screening process, as well as eliminate the need for redundant hand searching of selectee bags (pending protocol), simply replacing existing checkpoint X-ray systems with a traditional 100% EDS solution would be cost prohibitive and would likely further slow the passenger screening process.

TSA has recognized the need to improve the security process at the passenger checkpoint. However, TSA and airports are struggling to keep up with passenger processing using today’s screening systems and procedures. We are all familiar with stories of how long lines form during peak periods. These lines will continue to lengthen as the volume of air traffic increases and TSA enhances security at passenger checkpoints. Furthermore, in most locations airports do not have additional real estate to expand passenger checkpoints.

The system Reveal has developed for checked baggage is a uniquely designed for passenger checkpoint screening. By applying similar protocols to those being developed for checked baggage, it is possible to improve security, increase

passenger throughput, and reduce TSA labor by screening carry-on baggage with an EDS. I believe that airlines and airports would eagerly embrace a system that can significantly increase the throughput of the passenger checkpoint as a means to improve customer service while eliminating the need to expand checkpoints.

Conclusion

Mr. Chairman, since the tragic events of 9/11, EDS manufacturers have been primarily focused on meeting and supporting the deadlines mandated for checked baggage screening deployment. As has been articulated in previous testimony before this committee by the airport community, "it is now time to move forward to ensure that limited federal resources are wisely utilized to enhance security, system efficiency, and passenger convenience." I believe the efforts outlined in my testimony are critical to this endeavor. In particular,

- TSA must continue to work in close partnership with industry to encourage innovation and approve new technology as rapidly as possible. This is the only way that industry will be able to justify the large investments required to develop new technologies that will ultimately enhance aviation security and improve customer satisfaction.
- There is no "cookie cutter" formula that can be applied to every airport in the United States. As an airport director said to me once, "If you have seen one airport...you have seen one airport." We must recognize the unique needs of individual airports and take their requirements into account as we continue to enhance aviation security.
- Deploying EDS equipment "in-line" does not mean that airports need to exclusively undertake large, expensive, time-consuming construction projects. TSA and industry have contributed significant resources to develop next-generation EDS equipment that provides a lower cost alternative to the vast majority of the nation's airports. There needs to be a plan for how to take advantage of this investment.

I appreciate the Subcommittee's continued interest in this topic and look forward to working with you and TSA to accomplish our mutual goals.